DIGITAL VISION OPTICS (DVO)

DVO Frame Lock

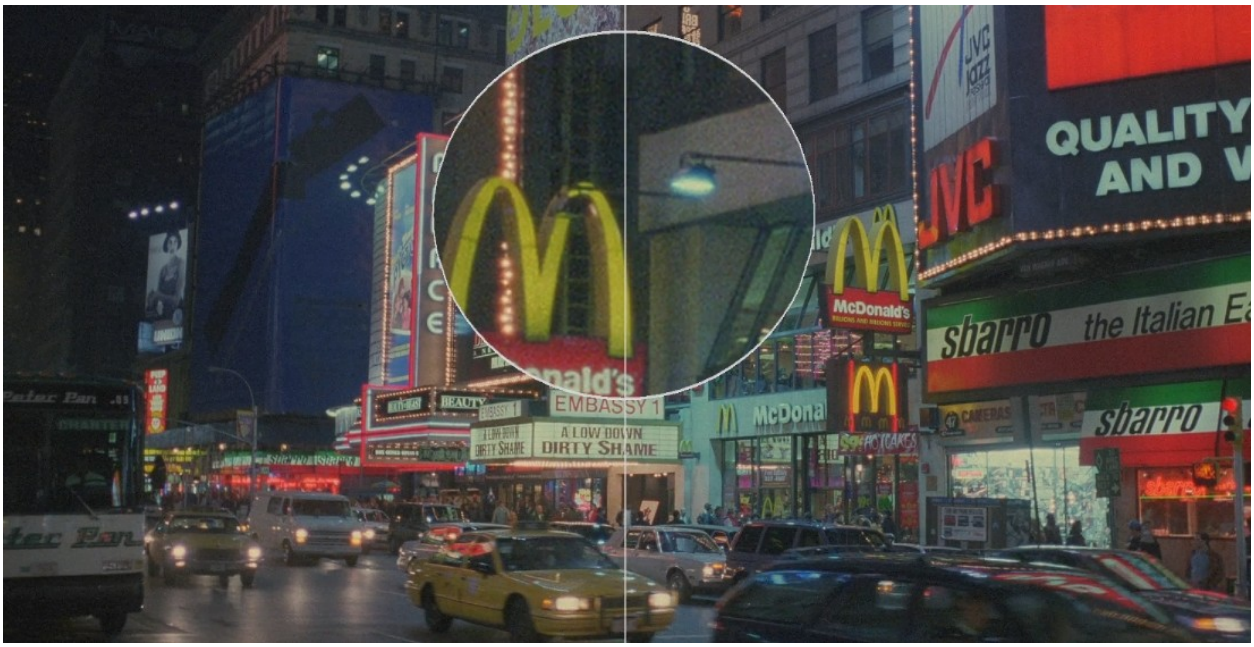
Image Stabilizer (Lock)

Achieves a perfectly stabilized image as originally captured in camera, by using the framing of the original source media. By doing so, DVO Frame Lock eradicates generation loss and instability introduced in later processing and scanning.

Lossless stabilization
No matter how much analogue duplication and weave occurs during scanning, DVO Frame Lock will align to the original framing, avoiding the costly need to re-scan or re-shoot.

Ignores sprocket jitter
Achieve perfect stabilization by finding the source camera gate, rather than looking for unreliable sprockets.

True to the view of the DOP
Stabilizes your image as the cameraman saw it. DVO Frame Lock will find the camera gate and ensure that the footage is presented as originally intended.



DVO Steady 2

Image Stabilisation (steady)

Reduce unsteadiness due to film weave during scanning or camera shakes during the capture of footage. The use of advanced motion estimation provides a better separation of random instability and pan/tilt movements. DVO Steady II can be used for both film and progressive video material.

Remove film jitter for a natural look
DVO Steady will take the weave out of the scan retaining a natural film look.

Remove Splice Bump
The splice awareness in DVO Steady seeks and destroys bumps at splices.

Achieve fixed broadcast formats
Built-in zoom and blanking makes sure you get the result you want.

DVO Alias

Image Aliasing

Alias is fast, simple & requires minimal user input. You'll easily be able to correct flickering & jagged swirls in patterned items of clothing & jagged lines in intricate architecture. Alias also offers instant correction for the most difficult of moiré pattern-related issues.

Correct moiré patterns
Applies motion compensated filtering to correct the affected area of clothing.

Correct aliasing in architecture
Corrects aliasing introduced in buildings and architecture.

Fix Issues BEFORE upscaling
Upscaling images can exacerbate aliasing effects or even introduce previously invisible aliasing. DVO Alias fixes issues before they've been upscaled.

DVO Brickwall

Fix Compression Lines and Artefacts

Reduce compression artifacts & improve the results of your compressed image. Reduce signal entropy & achieve extremely sharp cut-off beyond your defined frequency, enabling you to create accurate & defined spectral content for various types of compression pre-processing.

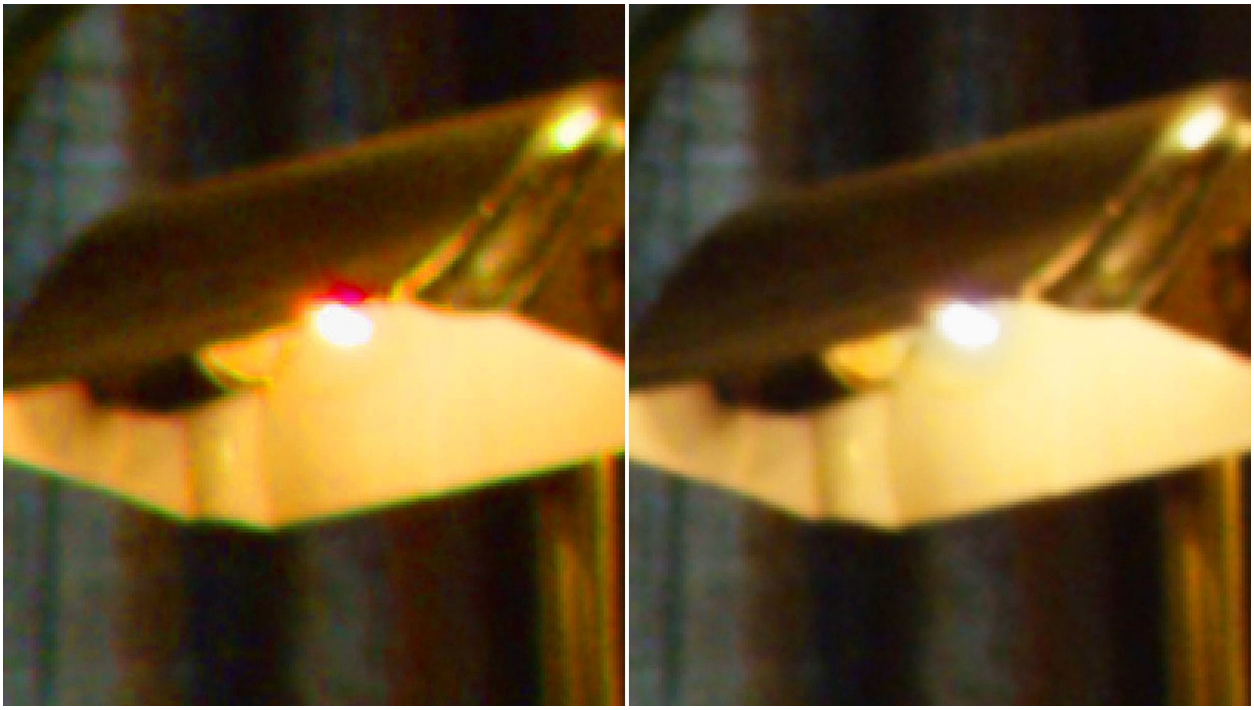
Brickwall does it all: avoid and remove macro blocking; remove the alias effect in Drone footage; remove mosquitoing in digitized videotapes; brush off high intense noise.

Reduce artifacts

By pre-filtering material, DVO Brickwall ensures the highest quality for compression and will improve the quality of the image.

Compensate camera sensor failures

Brickwall can deal with a range of issues caused by sensor failures. Utilizing the high-frequency filtering system, Brickwall can seamlessly identify and remove patterned artifacts.



DVO Chroma

Chromatic Aberration

Even the most sophisticated digital cameras can suffer from Chroma bleeding. DVO Chroma is a powerful, fully automated tool that will enhance the quality of your image in a completely non-destructive way.

Correct chroma bleeding
DVO Chroma can handle video material and remove color fringing that can be exacerbated by the video format, particularly with PAL and NTSC material.

Correct color fringing
Even the most sophisticated high-end digital cameras produce chroma bleeding in areas of contrast. DVO Chroma allows you to produce the highest quality image from the highest quality cameras.

Correct Color bleeding
DVO Chroma corrects chromatic aberrations or color fringing in film scans or due to the camera optics, without introducing any unwanted artifacts. Also any Bayer sensor will suffer chroma bleeding which DVO Chroma fixes with a simple nudge.

DVO Cross-color

Remove Chroma or Dot Crawl

Restoration artists often complain of unwanted results from crosstalk between the chrominance and luminance components of a composite video signal (PAL or NTSC). Once a video signal has been in the composite domain, this defect is not easily removed. DVO Cross-color is an incredibly accurate tool that eliminates these problems with ease.

Remove Crosstalk
High-frequency luma will be misinterpreted as a color in a composite signal; DVO Cross Color cancels the color in these areas to avoid sharp chroma twitter.

Clean chroma
Noisy color component signal will be efficiently cleaned.

DVO Line-Sync

Correct VTR Sync Errors

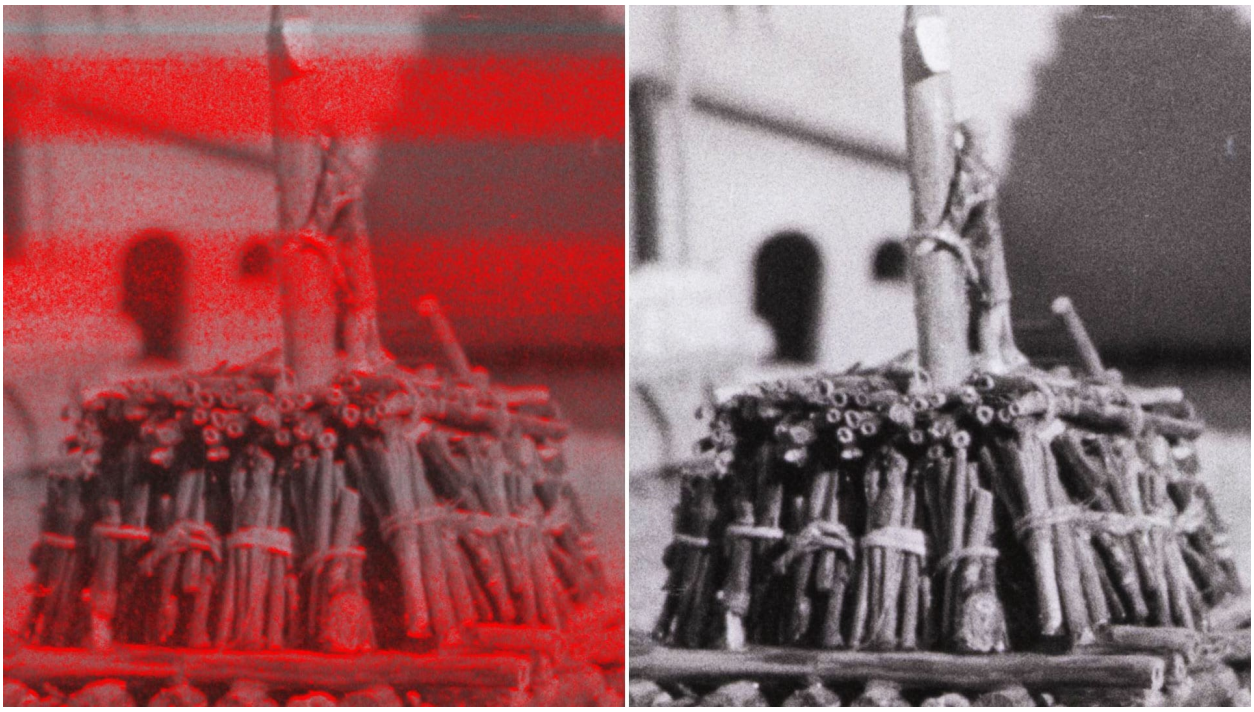
As a Restoration artist, you know that line sync, or line jitter, is a very common problem with videotape. It's typically caused by the lack of (or disturbances with) line synchronization pulses which prevent the videotape recorder from locating the actual start and end of each line. This causes random line displacement (jitter). The most visible effect is that vertical edges appear to be jagged. The jitter can range from +/-1 pixel to more than +/-5 pixels in severe cases. DVO Line Sync automatically detects and corrects these line displacements as well as any stretching caused.

Time Base Correction

Line sync will correct uncorrected or poorly TBC corrected video.

Built-in Noise Reducer

A very efficient noise reducer is available within this tool to control analog electric noise.



DVO Warp

Line Scanner Warping

An intelligent automatic tool for removing warping artifacts often associated with line scanners. The tool delivers precise results that are hard to match with any manual/semi-manual process.

Correct printing warps
When the film print has warping due to the copying process, DVO Warp can easily correct these unwanted artifacts.

Safe Processing
Can run unsupervised to correct issues.

Preset & bespoke Scanner profile setup

Comes with preset Scanner profiles and user-defined options, as TK & scanners have slightly different behaviors around film splices.

DVO Velvet

Extreme Noise Reduction/Night Shots

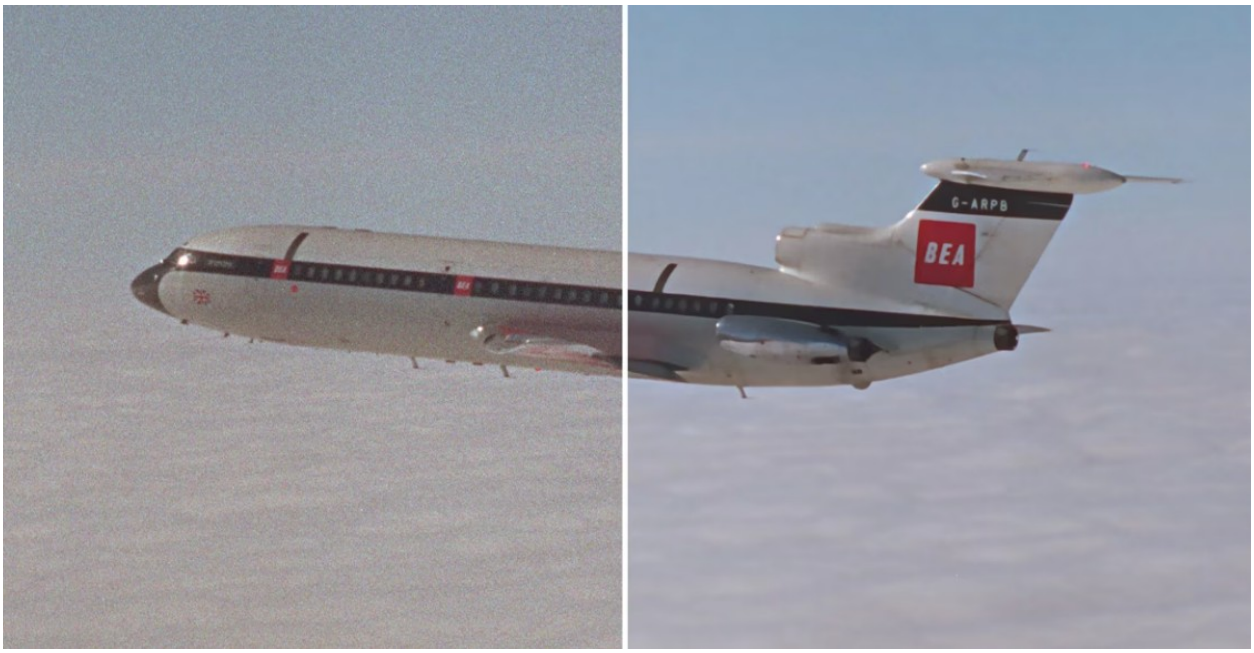
Managing extreme noise, complex artefacts and night shots can be a frustrating task, but not with DVO Velvet. This powerful tool allows you to take back control and create a perfect base for further image enhancement.

Remove Extreme Noise
DVO Velvet provides you with the ability to remove extreme noise, grain, and compression artefacts.

Manage Low Light Shots
Own the night with DVO Velvet and utilise footage with low lighting conditions.

Unlock Unusable Footage

Create the perfect base for further image enhancement and unlock previously unusable footage.



DVO Clarity

Film Grain and Noise Reducer

Will remove grain & noise in the RGB channels and won't leave artifacts.

Individual RGB channel management
Clarity will process the RGB channels individually, avoiding channel blending in the process.

No artifacts
Removes noise and grain but leaves details & doesn't ghost.

Accurate Noise Intensity
The automated Noise/Grain analyzer will generate a perfect curve for each individual clip, so the tool will adapt to the correct brightness of each colour channel when processing.

DVO Grain GT

Grain Removal

Using our Emmy award-winning PHAME advanced motion estimation technology along with edge-preserving 3-D Spatio-temporal filters and temporal (recursive) filters, DVO Grain GT enables artists to produce clean, sharp pictures and match the look of film grain from shot-to-shot (including grain matching for underexposed film). The process of adaptively selecting the best mix of spatial and recursive filtering for each pixel is unique to the DVO Grain algorithm.

Highly targeted grain management
Restore overly grainy material by carefully targeting unintended noise in the image; target a specific channel or set the filter to address any size of grain.

Enhanced delivery for broadcasting
Removing unwanted grain or noise greatly improves the quality of images after compression & also improves the file size of compressed material.

Grain Management
Using our in-depth filters DVO Grain GT can be used to enhance feature films, TV commercials, broadcast and streaming material.

DVO Noise

Electronic VTR Noise Reduction

Effectively manage and reduce unwanted analog electronic noise problems in video content.

Process video noise
Noise works in YPbPr to process video noise without cross conversion.

Field processing
Separate field processing achieves the best results in addressing tape and transmission problems.

Intelligent Processing

Our intelligent algorithm combines recursive and spatial processing to produce

DVO Regrain RGB

Add Grain

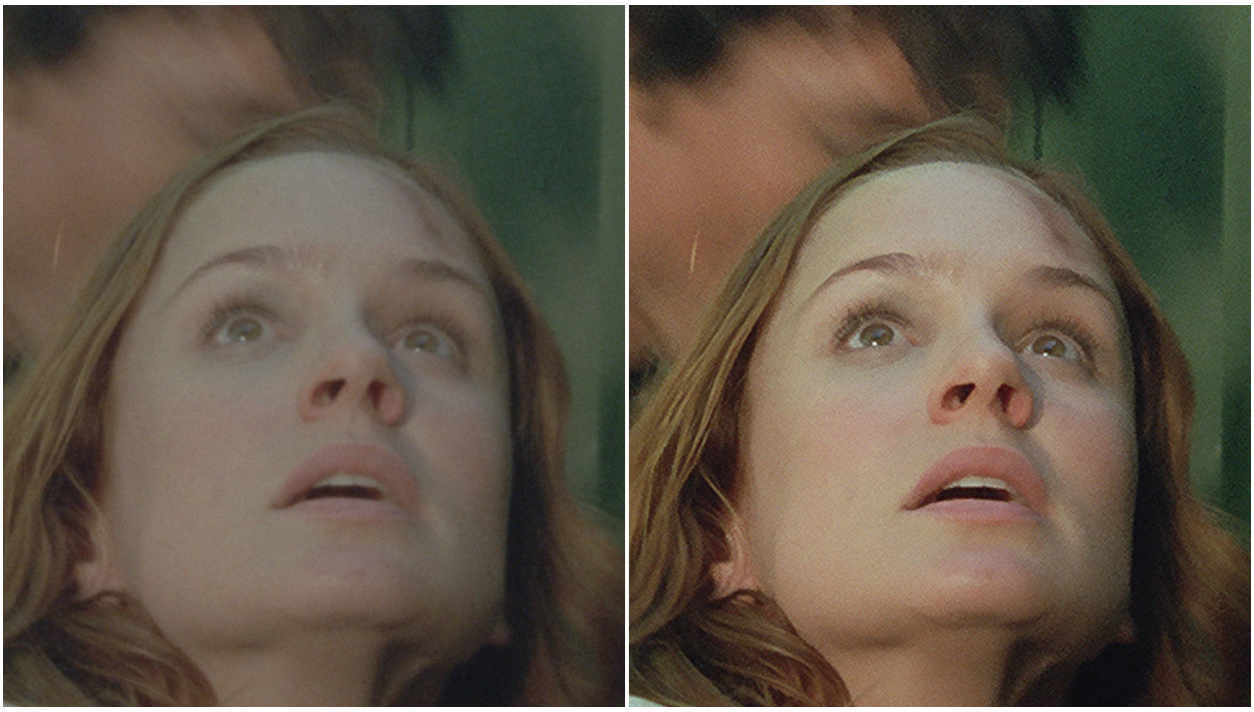
Add realistic, highly customized grain to images in R, G, and B channels. It gives complete control over grain size, sharpness, uniformity, and color.

Easy Setup
Easily match different sources to build a homogenized look.

Avoid Banding
Lack of bit depth of shallow slopes makes your image break when pushed; add some noise to dither and avoid banding.

Match any Film Stock

Manage your grain with full control of low-, mid- and highlights independently of emulsion layer to match any grain look.



DVO Aperture

Introduce Sharpness to Film Scans

For the restoration artist, Aperture accurately compensates for the loss of high-frequency information generated in film scans with increased response to high-frequency content in the signal, adding sharpness & texture to any image.

Improve sharpness
By targeting high-frequency information DVO aperture can introduce the appearance of an increased focus to an image.

Add texture
Enhances detail making the image appear more textured.

Optimize frequency

Aperture compensates for wavelength fall off in scanning.

DVO Sharpen

Sharpen Out Of Focus Images

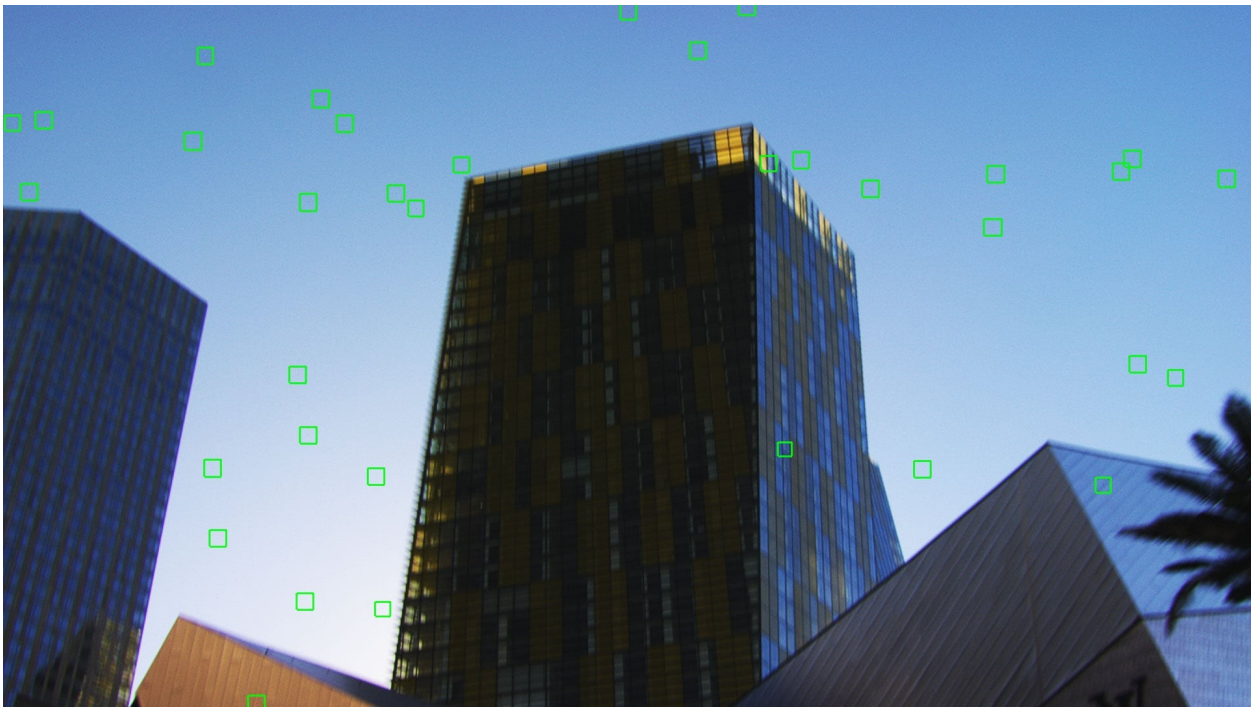
Greatly enhance out-of-focus shots. Sharpen uses adaptive picture analysis and processing to yield excellent results without the common side effects associated with standard algorithms (such as amplified grain, noise, or halos around areas that were already sharp).

Intelligent Sharpness
Intelligently identifies details beyond the noise and only enhances the bits you want enhanced.

Highlight image elements
Sharpen allows you to draw the focus of the viewer to a specific image element.

Match camera details

Use Sharpen to match the details across different camera sources.



DVO Pixel

Dead Pixel Detection/Removal

Failing QC for the streamers? DVO Pixel will identify dead pixels in advance of the QC process & can be used in combination with other DVO tools to fix and remove a whole host of camera issues and rescue previously unsalvageable footage.

Remove dead pixels
Remove problems before QC by automatically targeting dead pixels for removal.

Remove Zombie Pixels
Accurately identify pixels that periodically switch on and off.

Addresses camera issues

Can be used to repair technical issues with cameras such as trapped water, static artifacts, or sensor defects.

DVO Decompress

Banding, Compression, Macroblocking

DVO Decompress is a high-compression, artifact-infested cleaner, helping you improve bad gradients and macroblocking issues without the need for lengthy manual processes...

Improves Macroblocking Issues
Fix macroblocking issues in an instant and create a smooth finish on low quality or highly compressed footage.

Revives Archive Footage
Remove compression and low-bitrate artifacts allowing you to create a consistent texture for your content.

Improve Chroma Quality
Improve your Chroma scaling to RGB444 quality saving you time whilst color grading and restoring. Now that’s handy!

DVO De-interlace

De-interlacing

DVO De-interlace uses advanced motion adaptation techniques to preserve sharpness whilst avoiding jaggedness by accurately creating progressive frames from interlaced originated material. The deinterlacer can maintain the fluid motion present in video (e.g. 50p delivery from a 50i source) or create a film look (e.g. 25p delivery from a 50i source).

Create Film Look
Commonly used to create a Film look from interlaced video source material.

Preserve sharpness
Advanced motion adaptation produces sharp images and no jagged lines.

Satisfy Broadcaster requirements
De-interlace will meet UHD and other delivery broadcasting requirements.

DVO Twister

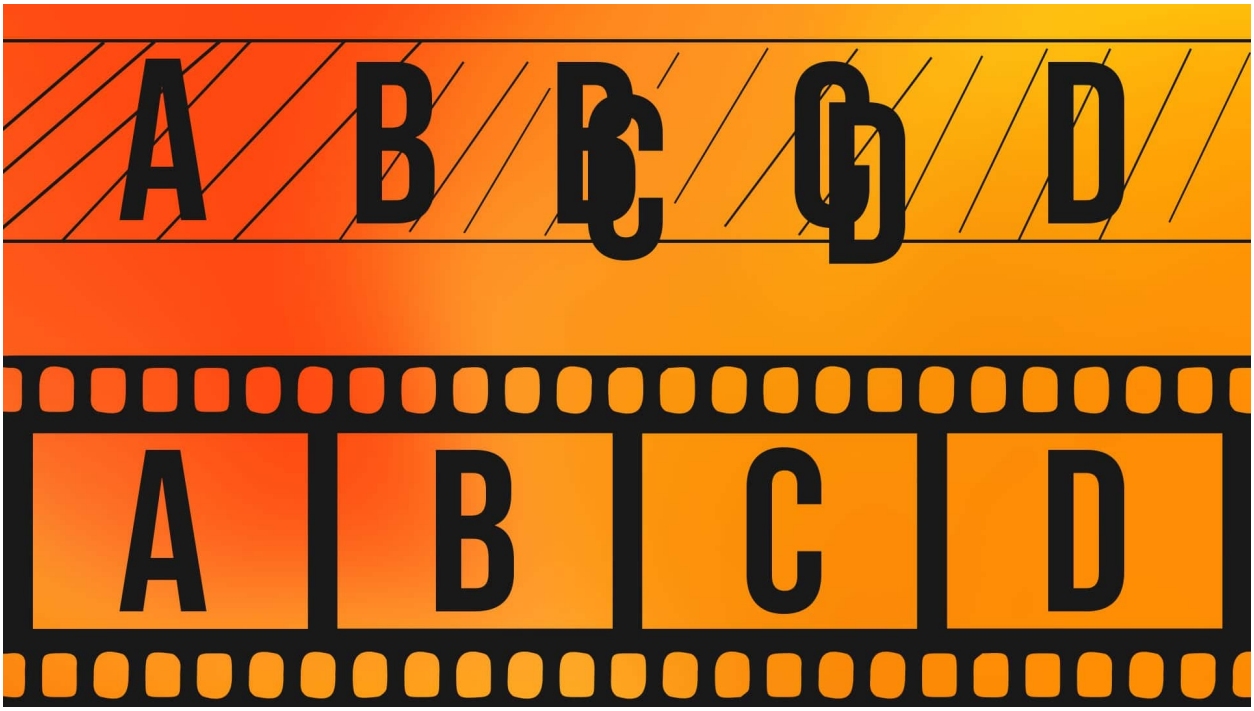
Framrate Conversion

Your new superpower!! The most advanced Motion Compensated standard conversion tool in the business.

Motion Compensated
Allows the accurate recreation of fields and frames using our proprietary PHAME motion vector algorithms.

Covers all broadcast standards & beyond
All standards are covered between 1.0 and 240.0 - making conversion limitless.

Allows conversions between Interlaced/Progressive
To and from I/I I/P P/P P/I.



DVO Three Two

Auto Mixed Cadence Tool

Automates the detection, removal, and correction of mixed cadence and broken cadence.

Auto-detect
Finds the 3:2 or 2:3 Cadence and creates a valid progressive sequence.

Handles broken cadence
Invalid edits and cherry-picked sequences will be corrected as DVO Three Two handles broken cadence.

Allows Manual Cadence
Set your Cadence start i.e AA, BC.

DVO Scala

4K Image Upscaling

Beautifully upscale resolution; transforms SD material to crisp 4K footage whilst improving image quality by compensating for unwanted aberrations.

Up-res your image
Scala will make your image look as though it was shot in higher resolution.

Improve the look
Makes the footage fresh and sharp.

Enhance the detail
No jagged edges and crisp details make the new footage stand out.

DVO Upscale

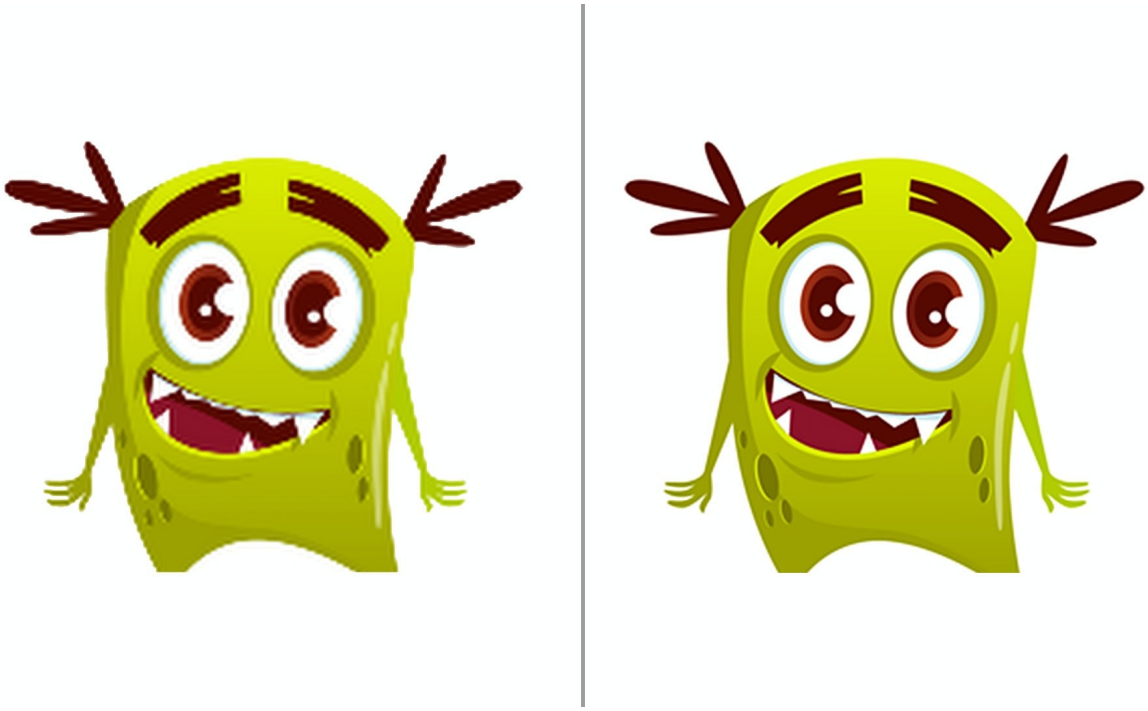
SD to HD Upscale

Easily achieve optimized up-scaling of material, in particular when converting from SD to HD, whilst maintaining the high quality of edges, including diagonals; Upscale is especially useful for graphics.

Preserve texture
Built-in texture preserving to enhance the subjective detail experience.

Video to HD
Built in advanced deinterlacer to achieve perfect progressive HD from your source SD Video.

Avoid scaling artifacts
Running in Advanced mode avoids scaling artifacts.



DVO Zoom

GFX/Animation Upscaling

Upscale with excellent accuracy, particularly when converting from HD to UHDV; also perform accurate downscaling of material with ROI processing and edge render options.

Accurate conversion
Perfect for upscaling animation to a higher resolution without introducing unwanted image artifacts.

Eliminate edge ringing
Lack of bit depth or shallow slopes makes your image break when pushed; add some noise to dither and avoid banding.

Bespoke your image look
Combine with other DVO tools to give the new resolution the look and texture you desire.

DVO Flicker

Automatic Flicker Removal

Will remove luminance variations and chroma breathing from one frame to another & analyze the image sequence to remove brightness and chrominance fluctuations. These may be caused by varying exposure time, unsynchronized light sources, telecine transfer, aging film stock, and/or film chemical related issues.

Remove image flicker
Using temporal analysis, DVO Flicker can globally target fluctuations in luminosity to normals the image and remove image flicker.

Easy Color breathing correction
Targeting chrominace changes from frame to frame, the algorithm easily identifies and corrects color breathing issues with film material.

Targeted flicker removal

Using our in-depth filters DVO Flicker targets the specific area of the image affected by flickering.

DVO Frame

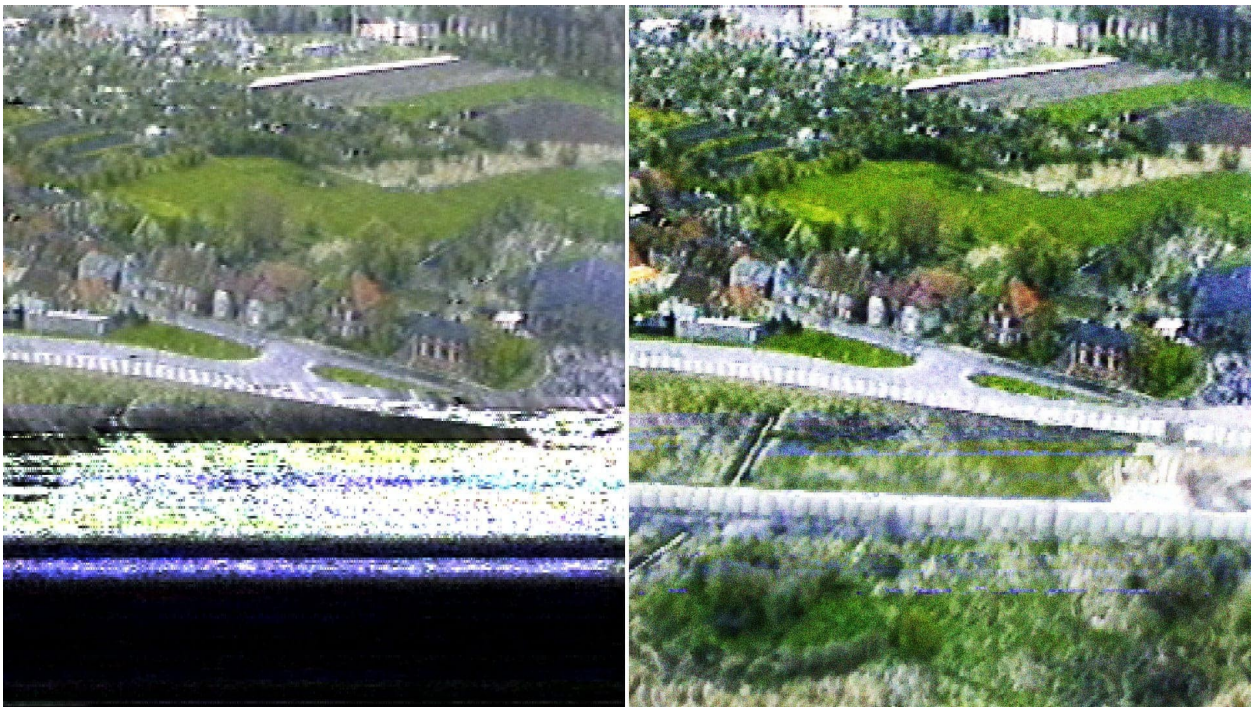
Fix Missing/Damaged Frames

Easily reconstruct missing or badly damaged frames using motion compensation to accurately recreate fields and frames utilizing our proprietary PHAME motion vector algorithms, with options to use nearest neighbor and interpolation to repair damaged frames.

Remove punch holes
DVO Frame can seamless fully replace punch holes in film with material, providing the ability to add film to areas that did not previously exist.

Reconstruct damaged frames
Can completely repair entire areas and/or entire frames that are seemingly beyond repair.

Repair multiple frames simultaneously
DVO Frame is fully keyframe table compatible, providing the ability to repair multiple frames in a row.



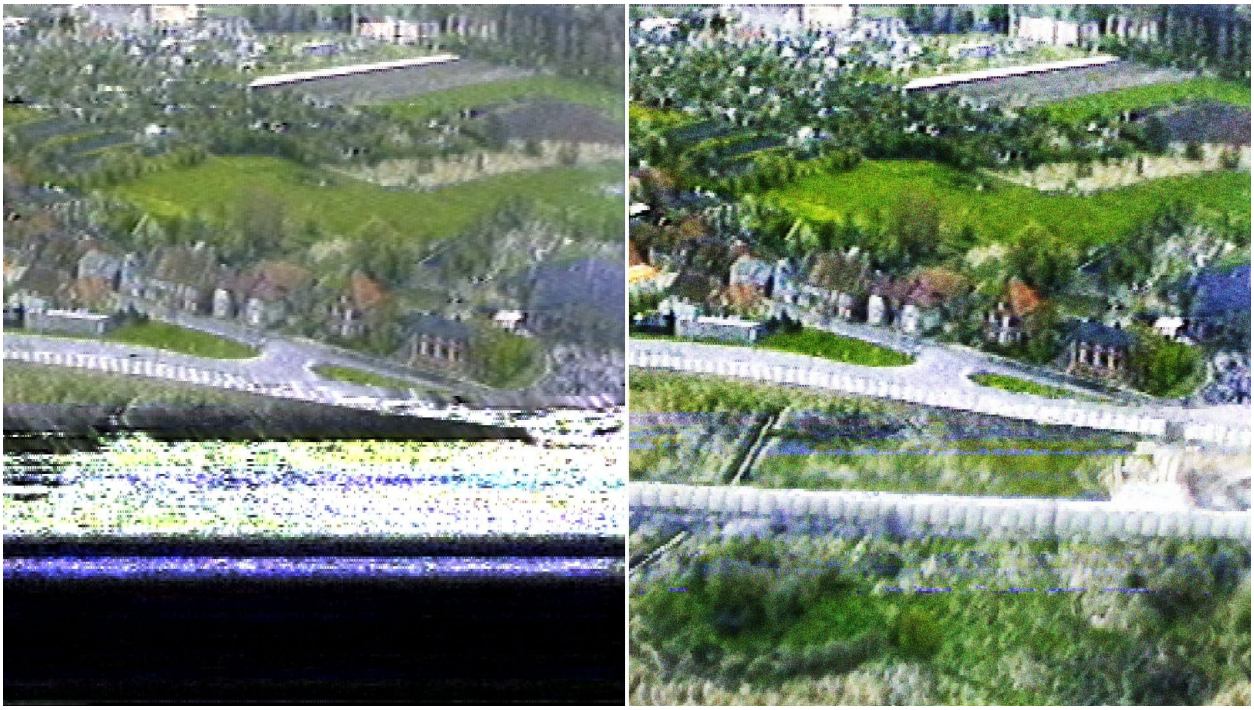
DVO Dropout + Fix

Drop Out Frames (Manual & Auto)

We supercharge your workflows by combining Dropout & Fix which provides an additional automated fix tool for larger imperfections, with a reveal function to remove erroneous Drop-out fixes.

Speedier workflow
Dropout & Fix combo increases cleanup speed.

Fixes in a single field
Fix will work in a single field without affecting the other.



DVO Dropout

Drop Out Frames (Auto)

Automated drop-out & random artifact concealment for head clogs and bad tape media.

Easy fixes for head problems & tape drops

Dropout will fix all of your Head problems and tape drops, big & small, Luna & Chroma.

PHAME

Our unique, Emmy award-winning motion estimation tech, which works like magic. (And if you're wondering, it stands for Predictive Hierarchical Adaptive Motion Estimation - snappy, huh?)

DVO Dust GT

Fast/Low-quality Dust Removal

Dust on Steroids!!! Optimized to render at faster speeds.

Even speedier workflow!!
The latest CPU technology support makes it faster than ever before.

Huge workflow time-saving
The time spent on manual painting will decrease to a fraction.

PHAME

Our unique, Emmy award-winning motion estimation tech, which works like magic. (And if you’re wondering, it stands for Predictive Hierarchical Adaptive Motion Estimation - snappy, huh?)

DVO Fix

Manual Dust/Artefact Removal

The ultimate Restoration tool - DVO Fix facilitates the repair of specific areas and imperfections in a single frame, such as scratches, hairs and blotches. It also works for repairing more extensive damage such as punch holes, film tears and full-frame reconstruction. Using a brush or shape tool to select the damage, DVO Fix automatically repairs the selected area by comparing it to adjacent frames and applying motion compensation to recreate missing detail plus grain compensation to blend-in the recreated information.

Auto clone & repair

In addition to Auto Fix and manual Clone, an Auto Clone mode will automatically reposition and perform a best match of surrounding frames to auto repair, as an alternative to complete regeneration of content.

Easy Fix
Use Fix to repair the problem area or the entire frame.

Allows advanced reconstruction
Uses references from any frame; Regrain, Rotate, Scale and offset the fix; edit any paint stroke.

DVO Scratch Target

Remove Scratches

Automatically remove vertical scratches utilizing advanced detection algorithms with a fill-in result far superior to the normal process of hiding the defect, by using information from both sides of the scratch.

Easily target specific areas
Create areas requiring different processing or safekeeping; can be used through the whole clip or a defined range.

Detect & Clean
Can detect and clean any scratch.

DVO Dust & Fix

MC. Dust Busting (Auto & Man)

Integrating Dust & Fix provides an additional automated fix for larger imperfections with a reveal function to remove erroneous Dust fixes allowing greater control.

Speedier workflow
Combining Dust & Fix maximizes restoration speed.

Easy & Accurate control
Take out false positives or hide a blotch with a paint stroke.

DVO Dust

M.C. (Auto Dust Busting)

Dust Busting is hugely time-consuming; DVO Dust utilizes a pioneering set of processing algorithms and new filters with our Emmy award-winning PHAME motion compensation technology which will remove around 90% of visible imperfections without introducing unwelcome artifacts, allowing huge time & cost savings in your workflow.

Remove mold and lichen

With the advanced processing capabilities in DVO Dust you can attack low contrast defects such as mold and lichen growth on analog media.

Huge workflow time-saving
The time spent on manual painting will decrease to a fraction.

PHAME
Our unique, Emmy award-winning motion estimation tech, which works like magic. (And if you're wondering, it stands for Predictive Hierarchical Adaptive Motion Estimation - snappy, huh?)

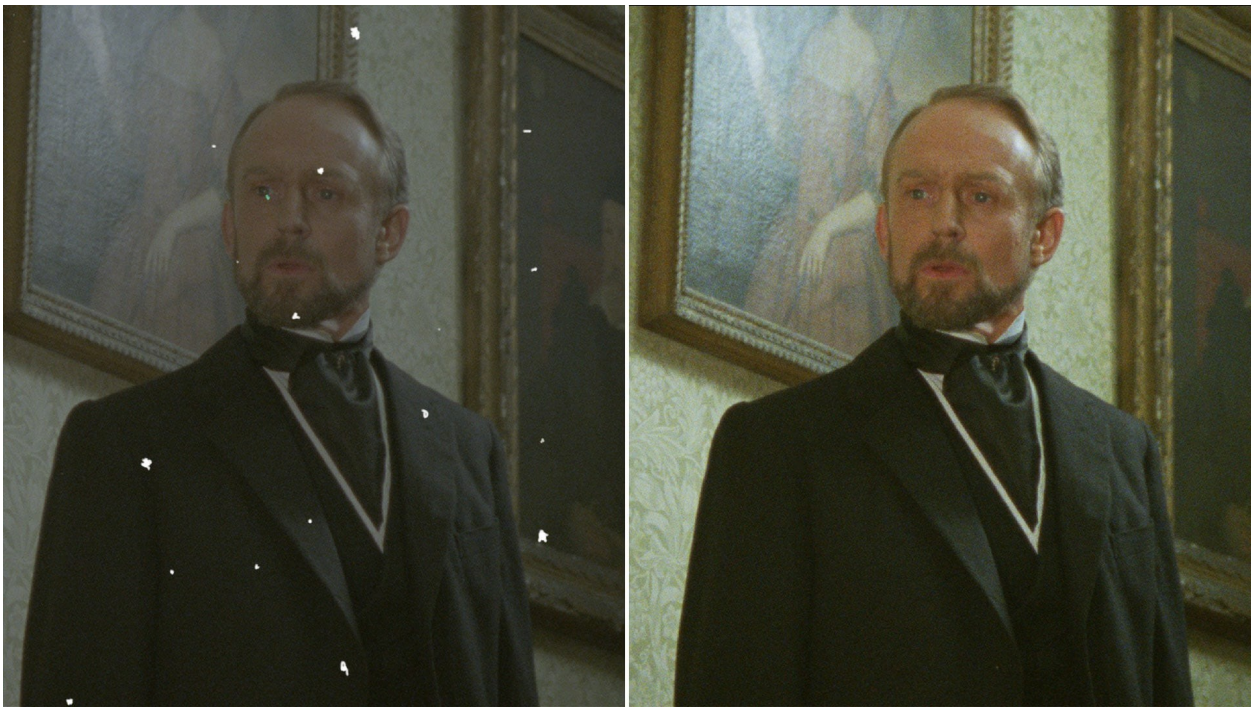
DVO Dry Clean
Auto Dust and Dirt Removal

Saves time in your workflow by providing the best auto-detection & repair tool for all sizes of defects & much more, meaning that more time can be spent on other aspects of the restoration.

Our digital wet gate
Dry Clean is the digital version of a wet gate.

Easy correction
From the tiniest speckle to the largest glue blotch Dry Clean will correct it.

Retains Flashes
Built-in camera flash detection will make sure that VFX and Flashes will remain.



DVO Dirt Map

Auto Dirt Remover

The go-to tool for Restorers, DVO Dirt Map is an advanced dust and dirt concealer capable of repairing other blemishes in film. It uses Infrared (IR) data taken from the alpha channel of the film clip as a hit signal.

Clean using IR channel
Uses the IR channel from a scanner to produce a perfect matte.

DVO Stereo Fix

3D Colour Matching

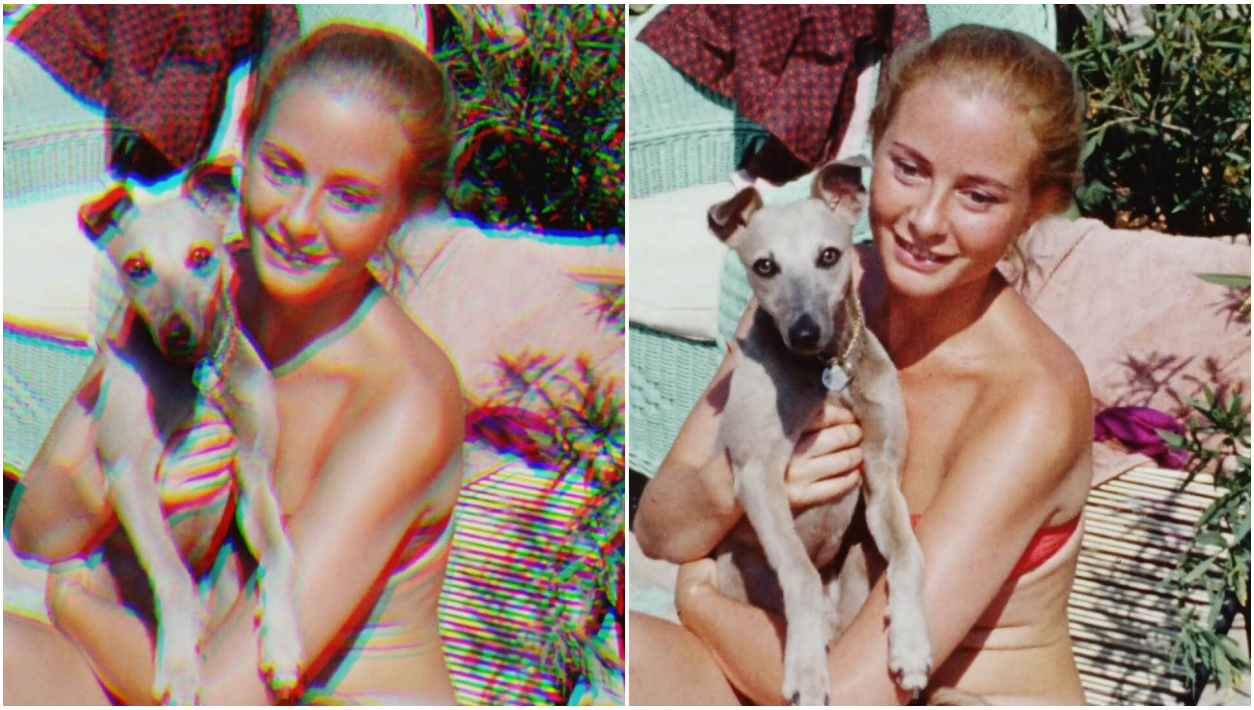
DVO Stereo Fix is an advanced stereo enhancement tool designed to resolve color matching and geometry alignment issues with stereo sequences.

Auto camera align
Automatically align the camera positions to provide a correct 3D geometry.

Auto color match
Automatically match the color balance between left and right eye.

Correct camera & Rig problems

Using local and global processing to treat even the trickiest misalignment and color balance issues.



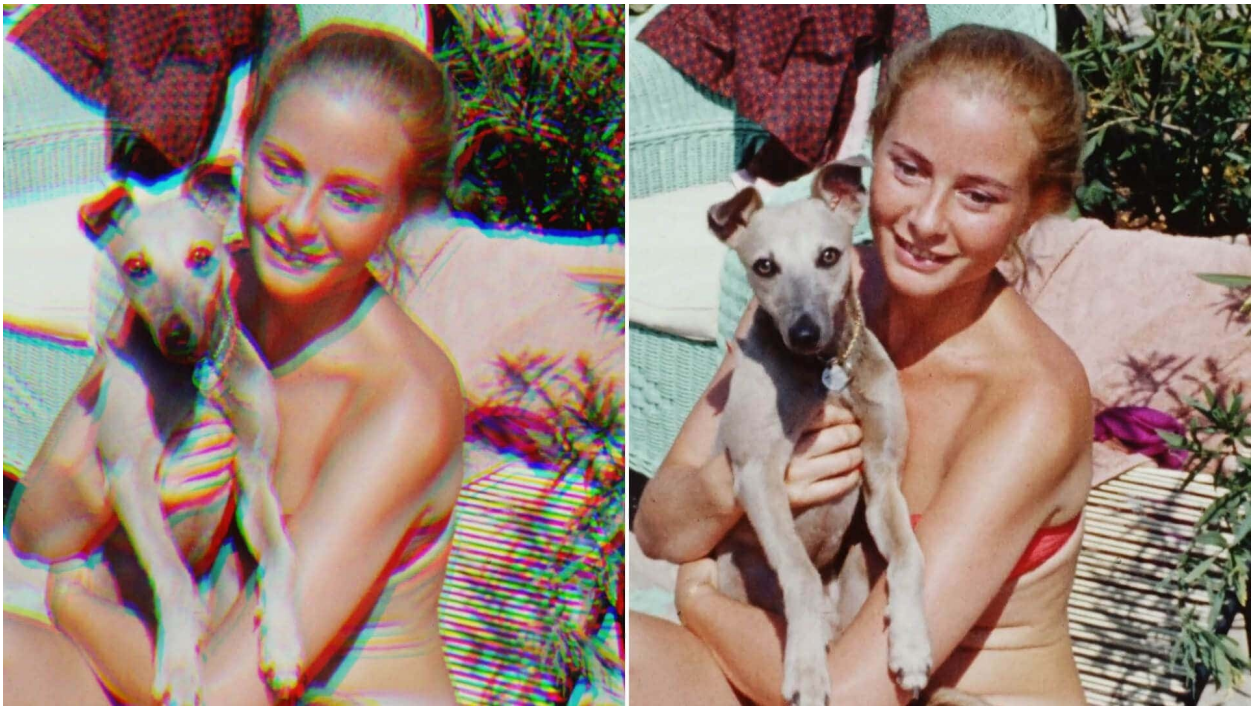
DVO Print Align

Realign RGB Separation Prints

DVO Print Align uses a fully automatic process to align RGB separation prints, even if the offset varies over time.

CMY separation
Selecting your best separation channel and aligning the other delivers your preferred master.

Grain awareness
Grain analysis ensures alignment is based on true image details.



DVO Print Align Sequential

Realign RGB Separation Prints With Drift

Automatically align RGB sequential separation prints, even if the offset varies over time.

CMY separation
Selecting your best separation channel and aligning the other delivers your preferred master.

Grain awareness
Grain analysis ensures alignment is based on true image details.

Retime

As the sequential CMY preservation method is frame repeating, the tool also works as a retime.